

30. On a flat surface, the distance from point A to point B is 4 cm, and the distance from point B to point C is 7 cm. Which of the following *cannot* be the distance from point A to point C?

A) 2 cm B) 3 cm C) 6 cm D) 10 cm

31. In the correct multiplication shown at right, R, S, and T are different non-zero digits, and $T > S > R$. Which is the value of S?

$$\begin{array}{r} RS \\ \times S \\ \hline 1TS \end{array}$$

A) 1 B) 4 C) 5 D) 6

32. If the shortest side of an isosceles triangle is 10, and the difference in lengths between two sides is also 10, then the triangle's perimeter is

A) 60 B) 50 C) 40 D) 30

33. $\frac{9}{2}$ is how much more than $\frac{2}{9}$?

A) $\frac{18}{77}$ B) $\frac{14}{18}$ C) $\frac{18}{14}$ D) $\frac{77}{18}$

34. How many positive integers less than 200 can be written as the sum of two positive even integers?

A) 101 B) 100 C) 99 D) 98

35. A wheel of radius 2 m rolls a distance of 200π m in 2 minutes. At this rate, how many full revolutions will the wheel make in one hour?

A) 100 B) 200 C) 1500 D) 3000

36. The product of the first 2010 prime numbers is divisible by

A) 210 B) 260 C) 420 D) 520

37. Of 180 paintings, 110 have blue borders and 90 have red borders. If 25 paintings have neither color border, how many have both colors?

A) 25 B) 45 C) 55 D) 65

38. The difference between the sum of the 50 smallest positive even integers and the sum of the 50 smallest positive odd integers is

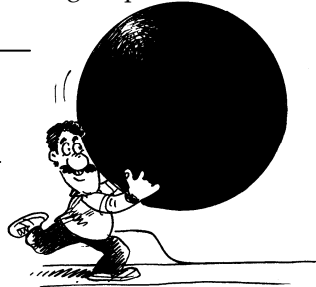
A) 100 B) 50 C) 25 D) 1


39. Of the following, which has a ones digit of 2?

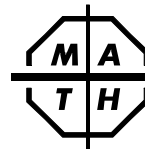
A) 2^{2009} B) 2^{2010} C) 2^{2011} D) 2^{2012}

40. Gwen spent $\frac{1}{7}$ of her money on food, and $\frac{1}{3}$ of her remaining money on clothes. She then had \$36 left. How much did she spend on food?

A) \$24 B) \$18 C) \$12 D) \$9



The end of the contest 



2009-2010 Annual 7th Grade Contest

Tuesday, February 23 (Alternate date: February 16), 2010

Instructions

- **Time** Do *not* open this booklet until you are told by your teacher to begin. You might be *unable* to finish all 40 questions in the 30 minutes allowed.
- **Scores** Please remember that *this is a contest, and not a test*—there is no “passing” or “failing” score. Few students score as high as 30 points (75% correct). Students with half that, 15 points, *should be commended!*
- **Results Posted Online** High-scoring contest results, both overall and regional, will be posted at *www.mathleague.com* no later than April 15.
- **Format, Point Value, & Eligibility** Every answer is an A, B, C, or D. Write answers in the *Answers* column. A correct answer is worth 1 point. Unanswered questions get no credit. You **may** use a calculator. You’re eligible for this contest only if you are in grade 7 or below and only if you don’t also take this year’s Annual 6th or Annual 8th Grade Contest.

Please Print (to the student: you must complete all items below)

Last Name _____ First Name _____

School _____ Teacher _____ Grade Level _____


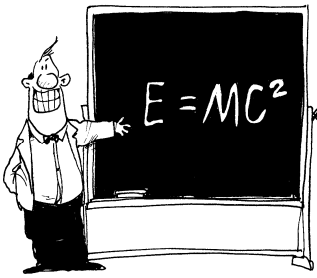

Time at Start of Contest _____ Today’s Date _____

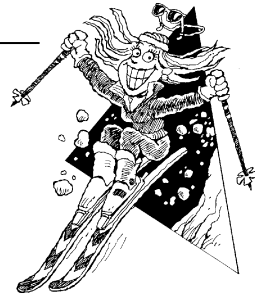
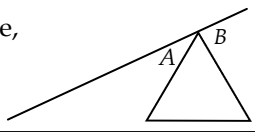

Do Not Write In The Space Below

To the Teacher:

Please enter the score at the right before you return this paper to the student. *Papers with scores of 30 or higher must be held until June 1.* Student’s Score: _____

Fifteen books of past contests, *Grades 4, 5, & 6 (Vols. 1, 2, 3, 4, 5)*, *Grades 7 & 8 (Vols. 1, 2, 3, 4, 5)*, and *High School (Vols. 1, 2, 3, 4, 5)*, are available, for \$12.95 per volume (\$15.95 Canadian), from Math League Press, P.O. Box 17, Tenafly, NJ 07670-0017.

1. A large square is divided into 25 small squares as shown. What percent of the large square is shaded? A) 5% B) 20% C) 25% D) 50%		1.
2. When <u>?</u> is divided by 4, the quotient is 18 and the remainder is 2. A) 26 B) 56 C) 70 D) 74		2.
3. To the nearest tenth, 2.345 is A) 2.3 B) 2.34 C) 2.35 D) 2.5		3.
4. The intersection of $\{a, b, c\}$ and $\{b, c, d\}$ is A) $\{\}$ B) $\{b, c\}$ C) $\{a, d\}$ D) $\{a, b, c, d\}$		4.
5. How many two-digit integers are greater than 20? A) 81 B) 80 C) 79 D) 78		5.
6. $(8 \times 6 + 2) \div 2 =$ A) $4 \times 3 + 1$ B) $4 \times 6 + 1$ C) $4 \times 6 + 2$ D) $8 \times 6 + 1$		6.
7. Which of the following is a prime number? A) 81 B) 83 C) 87 D) 99		7.
8. 1% of \$2010 is A) \$0.201 B) \$2.01 C) \$20.10 D) \$201.00		8.
9. $\sqrt{36} - \sqrt{25} =$ A) $\sqrt{1}$ B) $\sqrt{11}$ C) $\sqrt{14}$ D) $\sqrt{16}$		9.
10. Eight sisters are given a roll of quarters to share equally. There are 40 quarters in a roll. After three of the sisters take their shares of the quarters, what will be the total value of the quarters remaining in the roll? A) \$0.15 B) \$1.25 C) \$3.75 D) \$6.25		10.
11. $2^4 + 2^4 =$ A) 2^5 B) 4^8 C) 4^4 D) 2^8		11.
12. The ratio of the number of sides of a hexagon to the number of sides of an octagon is A) 7:8 B) 5:6 C) 3:4 D) 1:2		12.
13. The average of $\frac{1}{2}$ and $\frac{1}{3}$ is A) $\frac{5}{6}$ B) $\frac{2}{5}$ C) $\frac{1}{6}$ D) $\frac{5}{12}$		13.
14. $(6 \times 12 \times 18 \times 24) \div (3 \times 6 \times 9 \times 12) =$ A) 16 B) 8 C) 2 D) 0		14.
15. If a circle's radius is divided by its circumference, the quotient is A) 2π B) π C) $\frac{1}{2\pi}$ D) $\frac{1}{2\pi}$		15.

16. Of the following, which most nearly equals 23.4 divided by 0.5? A) 12 B) 24 C) 36 D) 48		16.
17. If a rectangle has an area of 40 m ² and a perimeter of 28 m, then the length of the longest side of the rectangle is A) 12 m B) 10 m C) 8 m D) 5 m		17.
18. 300% of 30 is A) 0.9 B) 9 C) 90 D) 9000		18.
19. Of the following, which is the smallest number? A) $\frac{1}{3}$ B) $\frac{21}{60}$ C) $\frac{99}{300}$ D) $\frac{1001}{3000}$		19.
20. On a map of the Andes, 2 cm represent 6000 km. How many cm represent 300 km? A) 0.1 B) 0.5 C) 10 D) 20		20.
21. One vertex of an equilateral triangle is on a line, as shown. What is $m\angle A + m\angle B$? A) 60 B) 90 C) 120 D) 180		21.
22. The alphabet is written in order over and over until 300 letters are written. What is the 300th letter written? A) K B) L C) M D) N		22.
23. After the first 4 tests of the year, Lana had an average score of 75. After the first 5, her average was 80. What was her score on the 5th test? A) 100 B) 95 C) 85 D) 80		23.
24. 10 m + 10 cm = A) 11 m B) 10.1 m C) 10.01 m D) 10.001 m		24.
25. 18:12 = A) 2:3 B) 16:10 C) 12:18 D) 36:24		25.
26. $45^3 =$ A) $3^3 \times 5^3$ B) $4^3 \times 5^3$ C) $3^6 \times 5^3$ D) $3^8 \times 5^3$		26.
27. What is the correct time 56 minutes after 10:56 AM? A) 10:00 AM B) 11:52 AM C) 11:56 AM D) 12:02 PM		27.
28. The square of the reciprocal of my favorite whole number is $\frac{1}{9}$. What is the cube of my favorite whole number? A) $\frac{1}{27}$ B) $\frac{1}{9}$ C) 9 D) 27		28.
29. A train that travels at 240 km/hr. will travel <u>?</u> m in 30 seconds. A) 2 B) 8 C) 2000 D) 8000		29.